Regulation Policy and Economics of Regulation Class No. 8 (file 7): Essential Facility and Access Charge

Objectives of Today's Class

(1) To understand the concept of an essential facility

(2) To understand the way of thinking as to an access charge

Outline of Class No. 7

7-1 Double Marginalization and Vertical Integration

7-2 Essential Facilities

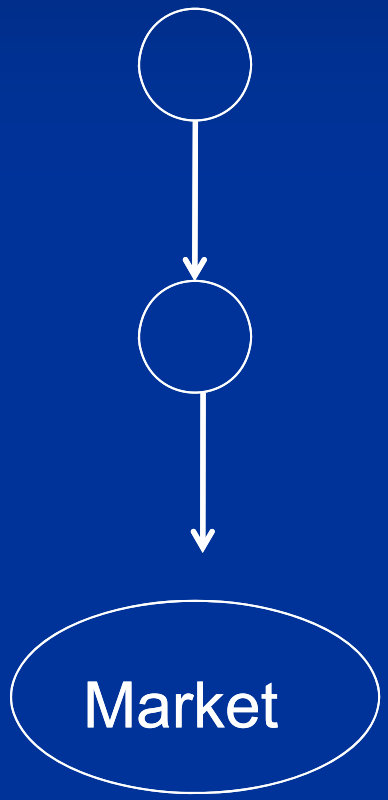
7-3 Access Pricing

7-4 Examples in Japan

Vertical Business Relations

Upstream Firm

Downstream Firm



Examples of Vertical Business Relations

(1) Manufacturer	–	Sales company
(2) Raw materials dealer	–	Final goods manufacturer
(3) Wholesaler	–	Retailer
(4) Parts manufacturer	–	Final goods manufacturer
(5) Patentee	–	Manufacturer
(6) Brand possessor	–	Manufacturer
(7) Power transmission division	–	Electricity selling division
(8) Airline, hotel	–	Travel agency
(9) Production company	–	Broadcasting enterprise
(10) MNO	–	MVNO

Substitutive Relations and Integration

Question: Suppose both Firm 1 and Firm 2 supply the closely substitutive goods, and that each firm is the monopolistic enterprise within the individual field of the good. When Firm 1 is incorporated with Firm 2:

(1) Does the joint profit increase?

(2) Does the price go up?

Provided that the merger brings about no improvement or deterioration in the productivity, and that no price regulation exists.

Complementary Relations and Integration

Question: Suppose both Firm 1 and Firm 2 supply the closely complementary goods, and that each firm is the monopolistic enterprise within the individual field of the good. When Firm 1 is incorporated with Firm 2:

(1) Does the joint profit increase?

(2) Does the price go up?

Provided that the merger brings about no improvement or deterioration in the productivity.

Vertical Business Relations and Integration

Question: Suppose Firm 1 and Firm 2 are in vertical business relations, and that each firm is the monopolistic enterprise within the individual field of the good. When Firm 1 is incorporated with Firm 2:

(1) Does the joint profit increase?

(2) Does the price go up?

Provided that the merger brings about no improvement or deterioration in the productivity.

Double Marginalization

Suppose both an upstream sector and a downstream sector are monopolistic:

If the upstream sector maximizes its profits, it ends up with setting the price higher than its marginal cost.

→Consequently, the price tends to be set at a higher point than the one that maximizes the joint profit.

The upstream sector sells at its marginal cost to the downstream sector .

→Consequently, the downstream firm sets its price so as to maximize the overall profits.

Solution to Double Marginalization

(1) Vertical integration

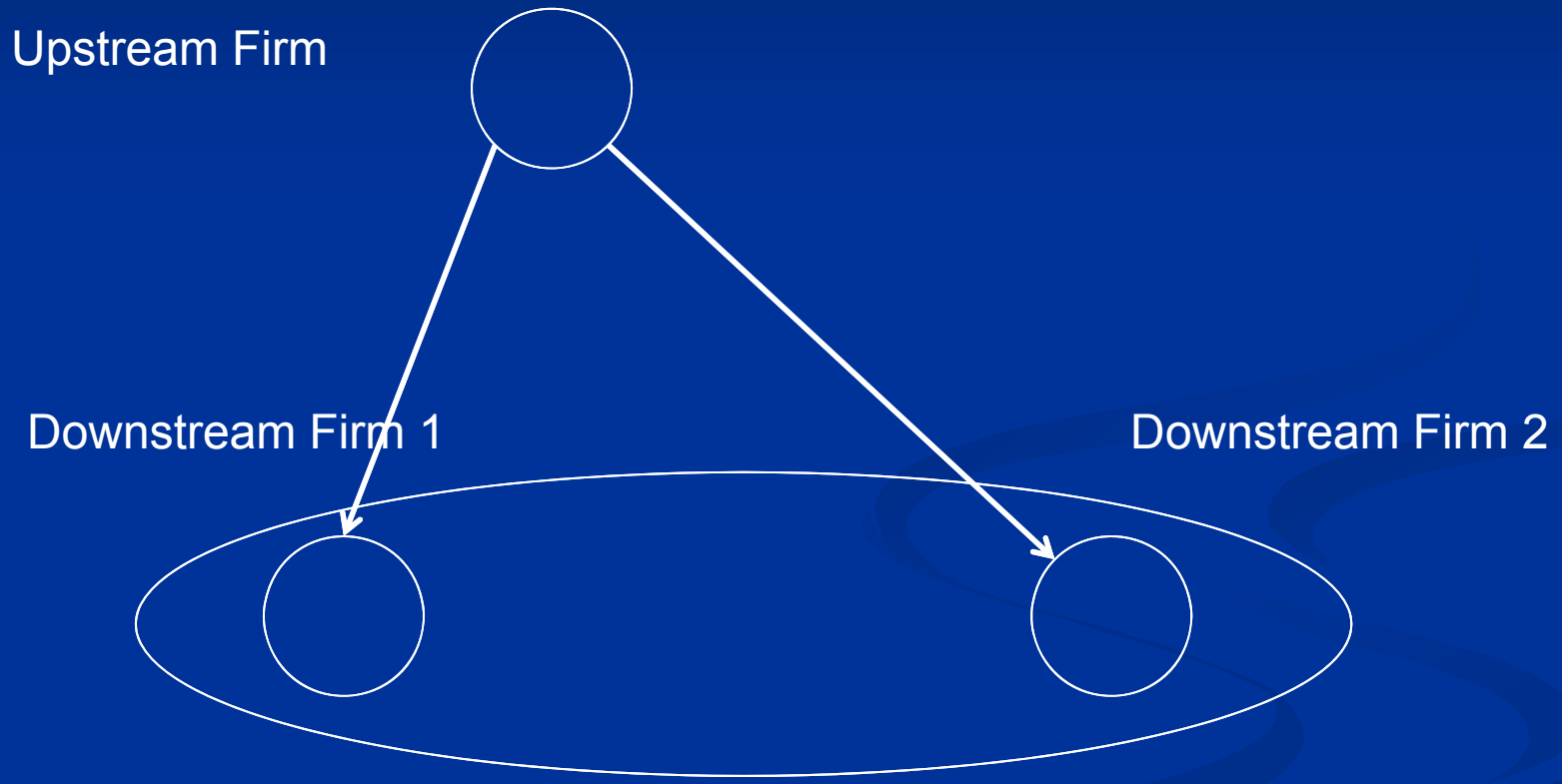
(2) Two-part tariff ~ Basic charge + Variable fee

To set the price of the variable-fee part equal to the marginal cost, and to collect the profits from the basic charge.

Note 1: This cannot be employed where price discrimination is unusable (resale being unavoidable).

Note 2: This kind of contracts, if viewed as a quantity discount, exists a lot more than it looks.

Competition among Downstream Firms



Competition among Downstream Firms

What if there is a competition among downstream firms?

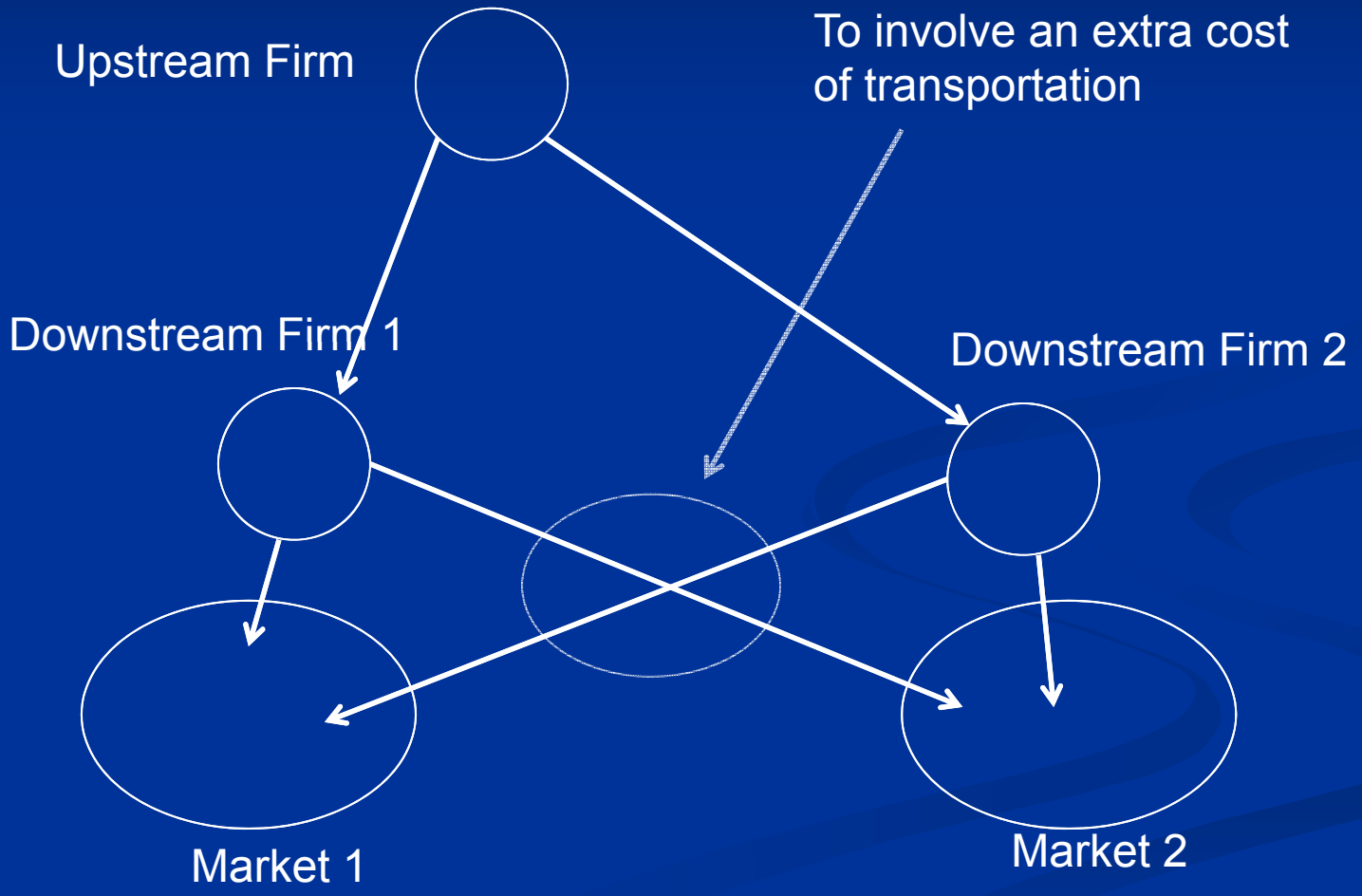
A variable fee to be set equal to a marginal cost

→The price ends up with the one lower than a monopolistic price.

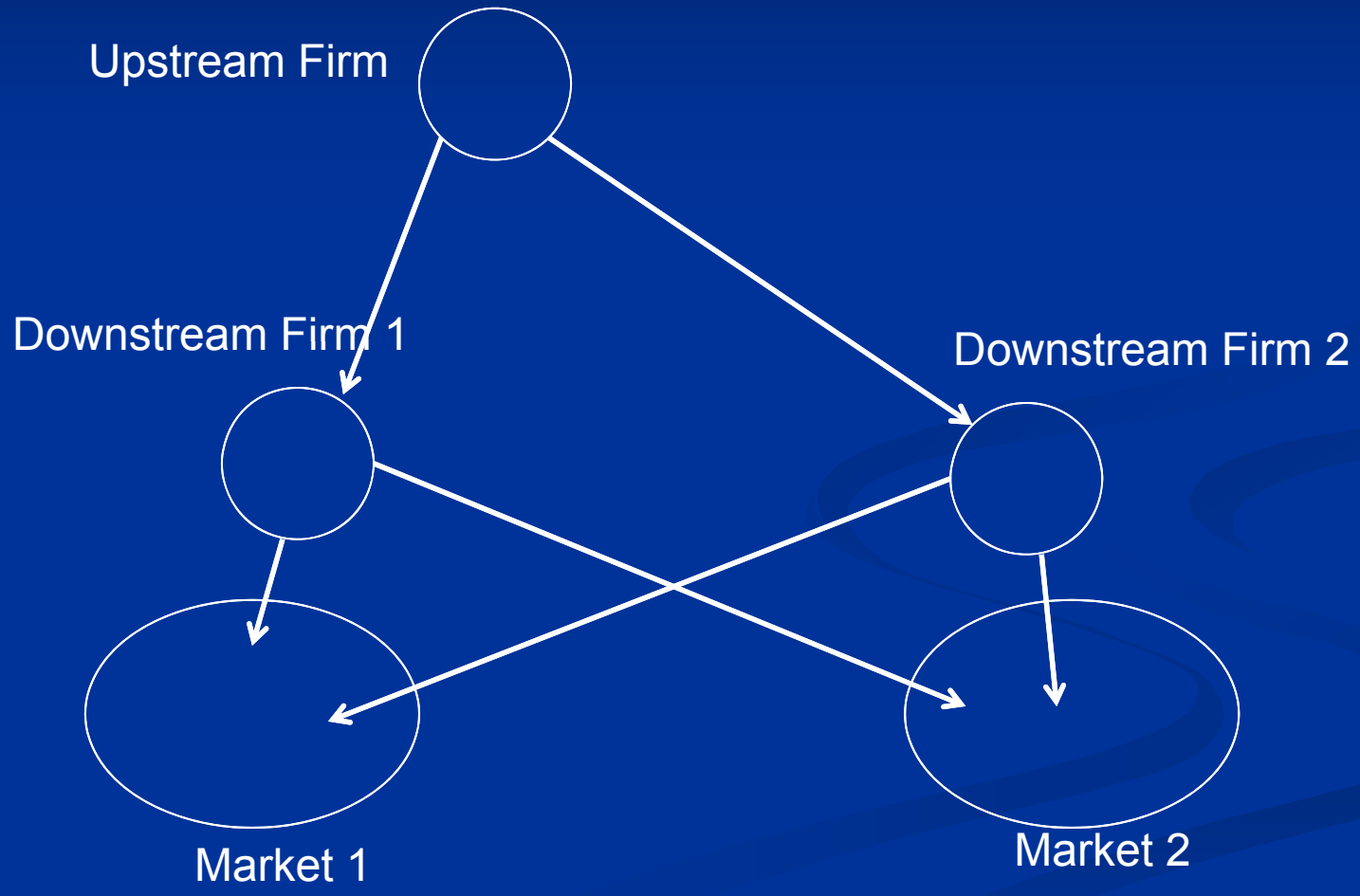
⇒If the downstream firms are symmetric, it is only necessary to increase a variable fee to the level where an equilibrium price—to be materialized as the result of a competition among downstream firms—is equal to a monopolistic price.

~In case they are asymmetric, it is required for each firm to have a different price, but which is not exactly easy to accomplish because of the competition law.

Competition among Downstream Firms



Exclusive Territories



Exclusive Territories

Prohibit Firm 1 from selling in Market 2 and Firm 2 in Market 1, respectively.

→To practically restrict a competition

⇒Attain monopolistic prices by setting a variable fee equal to a marginal cost.

~By means of restraining meaningless transportation, the costs of overall corporate divisions go down.

⇒Consumer surplus increases as well.

Matsumura (2003, CJE)

Additional Merits of Vertical Integration

- Systematic stability, quality preservation (?) →Class No. 7
- Economies of scope
- Difficult to cut and divide functions →Classes No. 7 and 9

Demerits of Vertical Integration

- Difficult to ensure neutrality with respect to competition
- Competition practically difficult to advance
- Possibility of an internal mutual support
- Accounting information liable to be dubious

Essential Facilities

Essential facilities ~ Bottleneck facilities

Facilities without which a market entry is not possible, but which an entering firm has difficulty in putting together by its own exertions (technically and economically).

In general they are the facilities that have large economies of scale.

Examples:

- Local channel in the communication market,
- Fiber-optic network,
- Transmission network in the electric power market,
- Pipeline network in the city gas market,
- OS, the charging of a fee, an authentication system, in the Internet, respectively

Access Regulation

Essential facilities ~ Bottleneck facilities

Facilities without which a market entry is not possible, but which an entering firm has difficulty in putting together by its own exertions (technically and economically).

There is no completion without opening them up.

→Open a facility to a new entrant's access with the condition to make it pay the rent.

→ Without any regulation, monopolistic power can be exercised.

⇒To be regulated in proportion to the magnitude of bottleneck nature.

Various Regulations on Access Charges

(1) Improvement of the dispute settlement system ~ The rent is settled through the negotiation between those concerned; the matter goes to arbitration only in breakdown.

(2) Indiscriminate regulation to the outside ~ As for the uses of those outside the company, an identical fare is charged when their use conditions are the same.

(3) Indiscriminate regulation to the inside and outside ~ To set the use conditions same for one's firm and other firms in the outside ← Separate accounting of a sort

(4) Provision regulation ~ When used by an outside firm, to make it publicly announce the fare in advance

(5) Establish a rate level per se based on a certain rule. A business entity is to independently decide and publicize that rule.

(6) Publicly establish a rule that settles a rate level.

Cost-based Access Charges

(1) Rate-of-return-cap regulation : Arrange profitability so as not to exceed the upper limit that is set as the rate of capital.

→Rate of return ＞ Real cost of capital⇒Overinvestment

→Rate of return ＜ Real cost of capital⇒Underinvestment

Averch-Johnson effect ~ This effect, not limited to the access chare regulation, can take place in all situations.

(2) Lump-sum cost method: A fare that enables the recovery of the costs (including cost of capital) actually incurred. A prescribed rule is applied to the assessment of equity capital (by such means as a use of other business entities' data).

⇒To lose the incentive to scale back costs. ⇒Price-cap regulation (Cf. Class No. 7)

Incremental Cost Rule

Peg an access charge at the cost to be additionally incurred through the other firm's use of a bottleneck facility.

~ Unable to recover the sunk cost accounting for the main source of costs (fixed costs) → To substantially impair an incentive for the investment

Long-range Incremental Cost Rule (LRIC)

Peg an access charge at the cost that enables the recovery of the costs which are hypothetically assumed to incur if a bottleneck facility is newly reconstructed.

(Features)

(1) Able to recover fixed costs ⇔ Incremental cost rule

(2) Not the cost actually incurred (historical cost), but the one to incur if constructed now ~ Forward looking

Forward Looking vs. Backward Looking

Forward looking:

Hypothetically calculate the cost by using state-of-the-art technologies

→Calculation based on simulations

Backward looking (historical looking) costs:

Calculation base on the costs actually incurred

~ Close to the lump-sum cost method

・To recover more securely the costs actually incurred

・Unable to eliminate a possibility that the costs include a superfluity

Vested Interests Protection Rule (Efficient Component Rule)

Sales price– Variable cost (which can be cut down under an assumption that a new entrant supplies) = Access charge

Profit margin of a new entrant = Just the advantage of the variable cost

Problem:

・Securement of existing firms →Difficult for competition to result in consumer benefits ~ Is it necessary to protect existing business entities to that extent?

Does an exorbitant access charge really result in a barrier to the entry?

High access charge → Raises the costs of rivals (new entrants) →For a firm (being vertically integrated) having a bottleneck facility, it is just a replacement of the cost, and not that its marginal cost is on the increase.

⇒Which puts the competitive condition disadvantageous to new entrants, making their entries difficult.

There is no guarantee that an access charge indiscriminate to the inside and outside is always competitively neutral.

Under a complete vertical separation, competitive conditions are identical and not disadvantageous to new entrants.

Does an exorbitant access charge really result in a barrier to the entry?

High access charge → Able to make enough profits with the charge even if the rivals (new entrants) steal customers away.

→ A small incentive to steal back rivals' customers by reducing the charge.

⇒As a consequence, it's easier to make a new entry. (The entry-barrier effect said in the previous sheet gets cancelled in part.)

Irrespective of complaints from existing business entities (holders of essential facilities) or new entrants, the public institution ought to keep watch over exorbitant access charges. ← Provided that this story is appropriate only for a price competition model.

Ex Post Facto Adjustment of Access Charge

Cost-based access charge: A fare level whereby the [cost + normal returns] can be recovered based on the projection of the demand

Shortfall in the recovery if the demand falls short of the expectation (the most recent FTTH), and excess returns when it tops the projection (the latest electric power and gas) →The supply side takes on a risk of demand fluctuation.

Ex post facto adjustment: An adjustment system where an access charge gets raised when the demand falls short of the projection, and the one gets lowered if the demand exceeds the expectation→Newly adopted in the telecommunications market

Question: Comparing a case with an ex post facto adjustment (a variable access charge being pegged after a quantity competition) against the one without it (a variable access charge being set up in advance, thereafter a quantity competition being carried out), what are differences in behaviors of vertically-integrated existing business entities and new entrants?

Competition Effect of Ex Post Facto Adjustment of Access Charge

Assume the cost of an essential facility constant at F regardless of the usage volume.

Assume the usage volume of an existing business entity (being vertically integrated) as Y^I, and that of a newly entering business entity at Y^N.

No ex post facto adjustment: $f = F/(Y^{IE} + Y^{NE}) \sim E$ being an expected usage volume

Each firm, given the access charge, independently sets up Y^I, Y^N (quantity competition). → The equilibrium is a situation where Y^I and Y^N to be selected in the end tally square with Y^{IE} and Y^{NE}.

With ex post facto adjustment: $f = F/(Y^I + Y^N)$

An access charge depends on each firm's actual usage volume; based on the understanding of this relationship, each firm independently sets up Y^I and Y^N.

Question: By switching the condition of an ex post facto adjustment from its "absence" to "presence", how do you think an equilibrium production quantity between the existing firm and the new entrant would change?

Reciprocal Access

To connect two networks

E.g., a state where a call can be made from a cellphone of Firm A to that of Firm B

・For the firms individually owning a bottleneck facility to mutually open up facilities for each other

・Same function as standardization

Examples of Reciprocal Access

- Reciprocal access of fixed-line phone business entities
- Reciprocal access of IP telephone networks
- Reciprocal access between cellphone business entities
- Reciprocal access between cellphones and fixed-line phones
- Reciprocal access of transmission networks and gas pipelines

Access regulation regarding reciprocal accesses

- Access regulation similar to one for essential facilities
- Indiscriminate regulation
- Access bargaining based on free negotiations ← Does this regulation work properly?

Barrier to Entry by Access Charge

Firm A, having already taken in a large subscriber, set up an exorbitant access charge by mutual consent with Firm B that aimed at a new entry, and passed the jump on to the call charge for B. (an artificial creation of network externalities)

→ No one intends to subscribe to Firm B.

→ Able to prevent the entry efficiently

Access Charge among Business Entities beyond Certain Scale

Firm A and B set up a reciprocal access charge by mutual consent → Unless there is an extreme difference in subscribers' receipt of messages, the access charge gets cancelled by and large. →Even if left to free negotiations, nothing out of the ordinary happens (bill and keep). But an inopportune charge distorts business strategy, nonetheless.

- Lower an access charge → A strong incentive to lower a variable fee
  E.g. Because of the access charge, there is no competition over the introduction of the flat-rate service. ~To hold back overburdening the network
- Raise an access charge → Receipt of messages in excess (an incentive for a firm to let other firms' users utilize its network)
  E.g., Softbank's strategy